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## 19. NIGER GRAIN FLY, *DIOZINA SORORCULA* (WIEDEMANN), A SERIOUS PEST OF NIGER IN CENTRAL INDIA

Narayanan (1961) and Rai (1977) listed the insect pests infesting niger [*Guizotta abyssinica* (Linn. f.) Cass] in India, important among which are the safflower caterpillar, *Prospalta* (*Perigea*) *capensis* (Guen.); aphid, *Uroleucon compositae* (Theobald), semilooper, *Plusia orichalcea* (Fab.); surface grasshopper, *Chrotogonus* sp. and curculionid beetle, *Lixus brachyrrhinus* Boh.

During the survey of insect pests of niger at Jabalpur, the grain fly, *Diozina sororcula* (Wiedemann) (Diptera: Taphretidae) was observed for the first time on niger, infesting developing grains in the seed capsule. The female fly lays eggs in the inflorescence in between the disc florets. The eggs are creamy white in colour tapering at one end and measure 0.81 mm in length and 0.16 mm in width.

The incubation period lasts for 24 to 72 hours. The freshly hatched maggots bore into the developing seeds and feed on its contents without disturbing the testa and the seed coat of the seed. The maggot completes its life-cycle in a single seed and does not destroy the neighbouring grains. The infested seed does not show any external sign of infestation until the fly emerges out from the seed. Hence, though a high population of the fly exists in the field, it becomes difficult to detect the infestation.

The full grown larva measures 2.2 mm in length and 1.0 mm in width. The larval period lasts for 7 to 12 days. Pupation takes place inside the seed coat. The pupal period lasts for 8 to 15 days. The pupa measures 2.0 mm in length and 1.1 mm in width.

The insect remains active from July to December if the niger crop is available in the field. It remains most active from September to November, when the crop of normal sowing season remains in flowering stage and 15 to 20 per cent seeds were found to be damaged by the fly. Being a direct pest infesting grains

which are ultimately utilized, it seems to be more destructive than *P. capensis* and *U. compositae* which are indirect pests of niger.

I am thankful to the Director, Commonwealth Institute of Entomology, London for the identification of the pest.

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### 20. OVIPOSITION OF TWO CHIRONOMIDS (DIPTERA) IN THE LABORATORY

The oviposition of chironomid midges is little known in comparison to the other aspects of biology studied in the laboratory (Oliver 1971). There is no record on the oviposition of chironomids in India and less attention has been paid to the biological aspects and oviposition in particular. The present study is aimed at clarifying oviposition in two Indian chironomids, *Chironomus barbatitarsis* Kieffer and *C. filitarsis* Kieffer in the laboratory. This study provides some information on the mechanism of oviposition and its behaviour during oviposition.

A stock colony of the insects was maintained in the laboratory for study. The gravid females were allowed to lay eggs in encaged culture trays — Petridishes containing tap water having 2-3 floating paper strips. As soon as the larvae emerged, they were transferred to another cage of similar nature containing water on a bed of sterilised mud and thin layer of fine sand. The larvae were fed with ground rabbit chow, fila-

mentous algae. A little amount of Bakers' yeast was also used for food. This was repeated for obtaining the stock culture.

The chironomids laid eggs in masses and the number of egg masses was one to many. The egg masses were cylindrical and the number of which was one but often a second, though small, was found to be deposited by the females of *Chironomus barbatitarsis*. However, in both the species the egg masses were provided with suspensory stalk and anchoring chord. The number of eggs within an egg mass varied from 400 to 500 in *C. barbatitarsis* and 150 to 250 in *C. filitarsis*. The eggs in the masses were oriented in a spiral fashion in the former and in 5-6 longitudinal rows in the latter species. The ovipositional behaviour was studied in the following three phases and both the species showed more or less similar pattern of behaviour.

*Preovipositional behaviour* — As soon as the females were released in the cages